

WHAT IS CLAIMED IS:

1. A process for treating an exhaust gas let out from CVD system for forming a silicon film using halogenosilane gas, the process comprising the steps of:

subjecting an unreacted raw gas and intermediate products included in the exhaust gas to a partial decomposition or conversion reaction treatment using a transition metal reacting agent for thermal-swing between room temperature and 500 °C;

separating and recovering the obtained halogenosilane gas and hydrogen chloride gas.

10 2. A process for treating an exhaust gas let out from CVD system for forming a silicon film using halogenosilane gas, the process comprising the steps of:

subjecting an unreacted raw gas and intermediate products included in the exhaust gas to a full decomposition or conversion reaction treatment using a transition metal reacting agent for thermal-swing between room temperature and

15 500 °C; and

separating and recovering the hydrogen chloride gas of the decomposed product.

3. An apparatus for treating an exhaust gas let out from CVD system for forming a silicon film using halogenosilane gas, the apparatus comprising :

20 decomposition means for subjecting a transition metal reacting agent to thermal-swing between room temperature and 500°C to partially decompose an unreacted raw gas and intermediate products contained in the exhaust gas;

separation reaction means for separating the halogenosilane gas and hydrogen chloride from the exhaust gas let out from said decomposition means;

25 vapor-liquid contacting means for bringing the hydrogen chloride separated by said separation reaction means into contact with water; and
gas recovery means for reusing the halogenosilane.

4. An apparatus for treating an exhaust gas let out from CVD system for forming a silicon film using halogenosilane gas, the apparatus comprising :

decomposition means for subjecting a transition metal reacting agent for thermal-swing between room temperature and 500 °C to entirely decompose an

5 unreacted raw gas and intermediate products contained in the exhaust gas; and

vapor-liquid contacting means for bring the hydrogen chloride separated by said separation reaction means into contact with water.